Bike Sport Developments Ltd – UK
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Installation – 4C-DRR.AA (revision_01, 08/12/11)
Author – Mick Boasman

NEMESIS - TCS

Nemesis-TCS 'Traction Control System
Installation manual Ducati Desmosedici RR

Kit part No.	TCS-4C-DRR.AA
Application - Desmo RR	

Speed pick up components	Part No	Checked	Qty
Front left speed bracket	CSD1280		1
Front left axle spacer	CSD1281		1
5 bolt trigger disk assembly	CSP1014		1
Speed sensor	23813030401		1
M8 Washer - Aluminium	CSP1013		5
M8 x 20 low head cap screw	CSP1034		5
M6 x 16 Zinc Hex head cap screw - Speed sensor	CSP1019		1

Traction module components	Part No	Checked	Qty
Traction Control Module - 4c	CSP1048		1
TCS - 4c standard back panel	CSD1337		1
Bobbin - Dia 10x17, M4 female	CSP1046		4
M4 x 8 SS button head allen screw	CSF1045		8
M4 spring washer	CSF1050		8
Carbon mount plate - Desmo RR	CSD1362		1
Spacer set (set of 3)	CSD1365		1 (set)
M6 x 60mm SS button head allen screw	CSF1047		1
M6 x 50mm SS allen cap screw	CSF1046		1
M6 x 40mm S/S cap head screw - black	CSP1025		2
M4 Nyloc nut	With module		1

Wiring	Part No	Checked	Qty
wiring - section 1 - TCS	CSW1363		1
Wiring - section 2 - Front	CSW1371		1
Throttle signal - quick link (red)	CSP1015		1

Display module components	Part No	Checked	Qty
Display module	TC-Pod		1
Spacer - Dia 12.8 - 6.5bore - 9.5 length	CSP1045		1
Center bracket - TC-Pod	CS1243		1
Push button assembly - blue/green TC-Pod	CS972		1
Velcro pad – 3M	CSP1049		2
M3 x 8 Hex button head	CSP1018		2

Miscelaneous components	Part No	Checked	Qty
Cable ties - 200mm x 4mm	CSP1021		16
Printed TCS overview manual			1
Printed TCS DRR AA manual			1
Nemesis-TCS stickers	CSP1022		6

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IMPORTANT – To be read by ALL installers and owners

Diagnostic light

The Nemesis TCS directly controls the ignition coils on your bike. The internal ECU diagnostics will think there is a problem with the coils and activate the diagnostic light on your dashboard. There is no way to avoid this.

Terms of use

The presence of the Nemesis-TCS does not take away the responsibility of the rider to operate the bike correctly within their own abilities, the track conditions and the laws of physics.

The system is designed to achieve greater on-track performance by the use of power modulation during wheel slip events, but in no way should it be considered possible for the system to recover from every conceivable loss of grip. The onus for safety always rests with the rider to stay within his or her own abilities, and to ensure that the 'on-bike' equipment is programmed, setup correctly, and an appropriate TC level selected for the skill of the rider, the bike and the track conditions.

This equipment is intended for racing or track day performance use only and where exhaust emission controls are not applicable.

By installing and using the Nemesis-TCS you automatically indemnify Competition Systems Ltd, our suppliers and our authorised dealers from all first party or third party loss or damages. Normal components warranty is not affected

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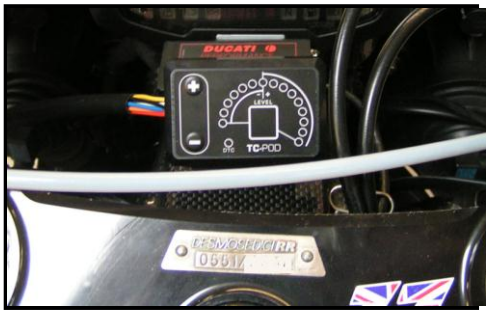
Preparation. Remove these parts from the bike.

- Left and right fairing panels
- Fuel tank
- Throttle body and air box assembly as one piece.
- Front mudguard and front wheel
- Battery box

TC-Display pod Fitting:

- Mount the display pod to the top of the carbon panel just infront of the dashboard. Use the angled bracket, M3 screws and Velco. Route the wiring down the left side of the carbon bracket using the same route as the existing bike wiring.
- Mount the CS972 switch assembly to the upper or lower clutch master cylinder clamp using the longer bolt and spacer provided. Connect the CS972 switch assembly to the TC-Pod via the 4 way connector of the TC-Pod wiring.
- Do not secure any wires in place at this stage as there will be further wires added in this region.
- Important note – The TC-Pod supplied, as part of the TCS is not the same as the standard TC-Pod. Do not attempt to swap parts
- If installing a pit limiter switch, mount it on the lower clutch clamp bolt as seen in the image here.



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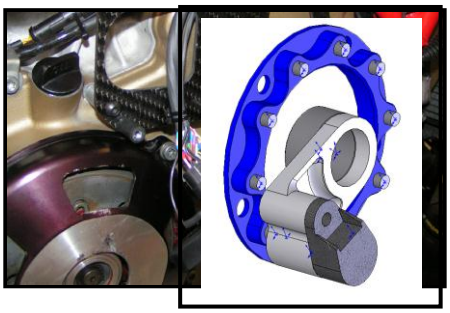
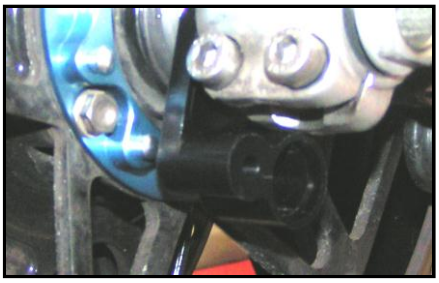
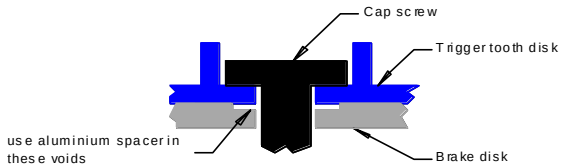
Front Wheel Speed:

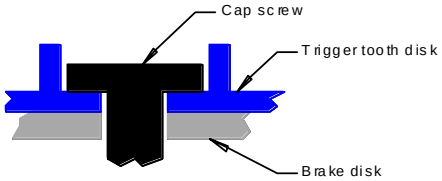
Your TCS kit comes with a dedicated 10-tooth trigger disk, sensor, and axle spacer for use on the left side of the bike.





- Remove the front wheel from the bike
- Remove the 5 bolts that secure the left brake disk in place
- If your brake disks have small sunken rebates in their surface to accommodate the bolt heads, these must be filled using the 5 aluminium washers provided. Failure to do this will distort the trigger disk and more importantly may cause the brake disk to come loose in service - **See images below**
- Fit the new blue trigger disk using the original bolts and secure using the recommended thread lock agent and tightening torque
- Ensure that the trigger disk is sitting flush against the brake disk
- Re-fit the wheel, replacing the standard spacer with the new thinner spacer and sensor mounting
- The sensor gap is fixed and no adjustment is required by the user. The design gap is between 1mm and 2.5mm
- The sensor maximum range is over 4mm for smaller targets and 6mm for larger targets, therefore no other ferrous objects should be installed anywhere near this equipment
- The sensor bracket can be fitted at any angle relative to the fork - this makes no difference to the measurement. Typically the bracket sits under the fork leg with the sensor connector pointing backwards.

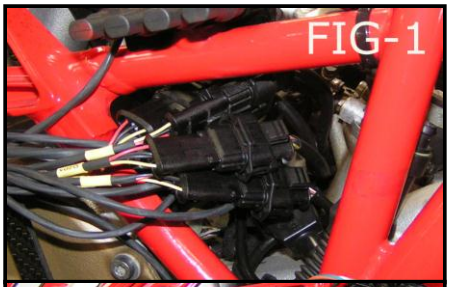




IMPORTANT – Care should be taken when using paddock stands not to damage the wiring of the front speed sensor.

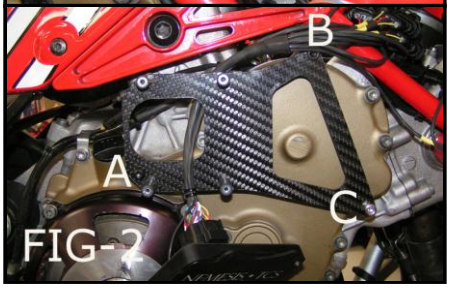
Wiring – Stage 1

The wiring provided in this kit comes in 2 parts to simplify the installation and enable crash damaged parts to be replaced without a major strip down.



Disconnect all of the existing ignition coil connections and pull them to the right side of the bike so they are visible within the triangular section of frame as seen in **FIG-1**

Route the main body of the wiring loom back towards the oil filler cap. Do not secure anything in place with cable ties at this stage.



Fit the 4 rubber mounts to the carbon plate using 4 x M4x8mm screws plus spring washers. The carbon plate can now be fitted to the engine casing using these parts.
Position A – M6x60mm **button head** + 25mm spacer**
Position B – M6x50mm cap head + 16mm spacer
Position C – M6x40mm cap head + 9mm spacer
Remember to feed the main TC module connector through the carbon plate prior to securing the plate onto the engine casing.
** *Button head screw is used to provide clearance to the TCS module body.*

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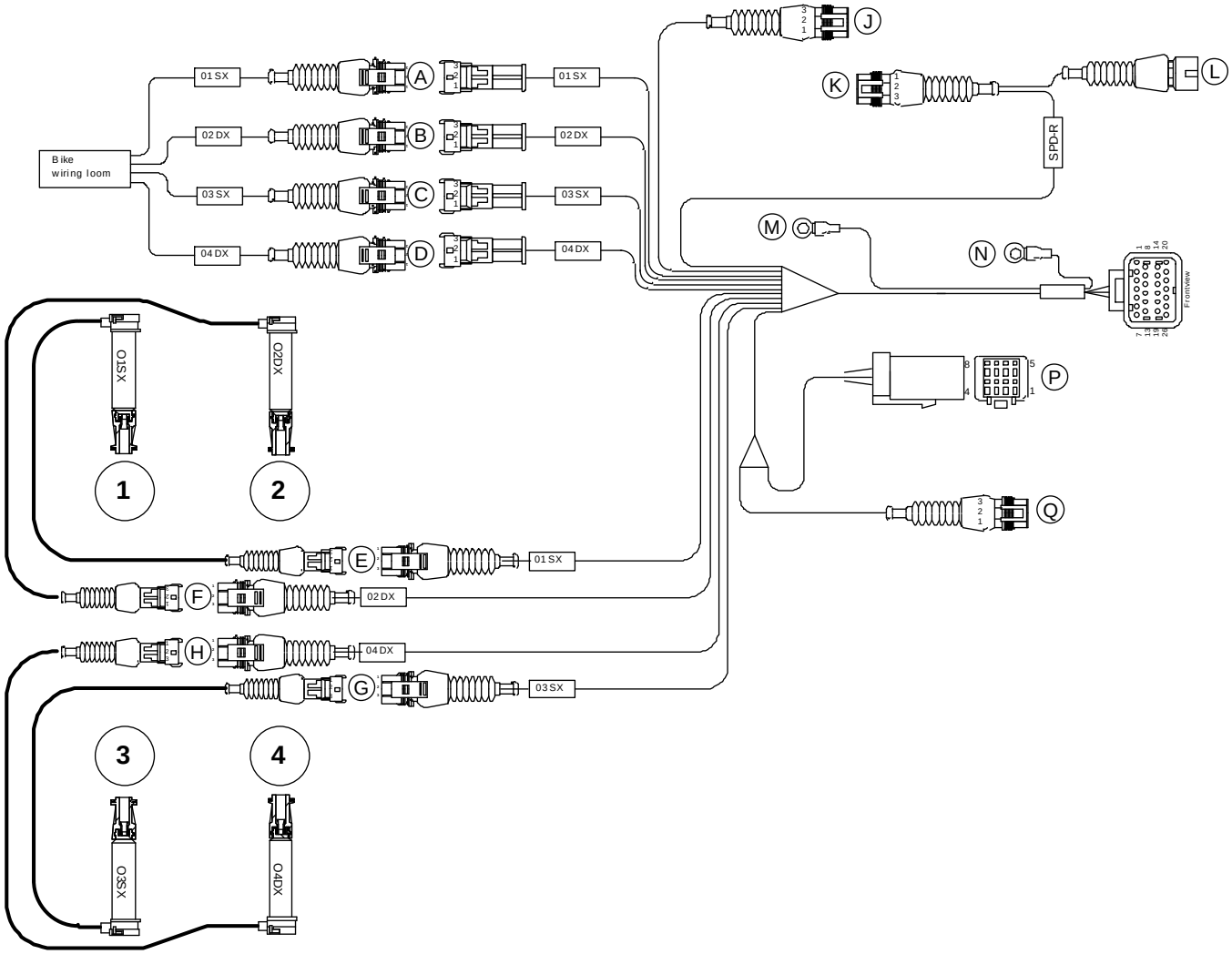
Connect the main wiring loom to the TCS module. It is vitally important that the small ground wire with the 4mm eye (**N**) be connected securely to the M4 stud as seen in FIG-3 using the M4 Nyloc nut. Without this the module or coils could be damaged as well as TCS not functioning correctly.

The TCS module cannot be fitted to the rubber mounts using the remaining M4x8mm screws plus spring washers.

IMPORTANT – Failure to fit the ground securely can lead to misfire / engine not starting / TCS module damage. This is the main power ground for the coil system.

Wiring, Main section 1 - Schematic



Wiring – Ignition coils

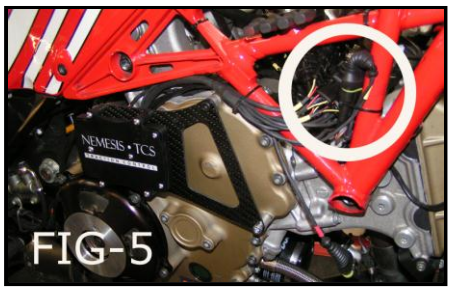
The following 4 connections are all ignition coil INPUT signals from the bike to the TCS unit
A - Connect to Coil 01SX wiring from bike wiring loom
B - Connect to Coil 02DX wiring from bike wiring loom
C - Connect to Coil 03SX wiring from bike wiring loom
D - Connect to Coil 04DX wiring from bike wiring loom

The following 4 connections are all ignition coil OUTPUT signals from the TCS to the drive the ignition coils
E - Connect to Coil 01SX on the bike
F - Connect to Coil 02DX on the bike
G - Connect to Coil 03SX on the bike
H - Connect to Coil 04DX on the bike

IMPORTANT – It is vitally important that the coil inputs and outputs are connected correctly or the bike may not start on all cylinders, or may even damage the engine.

Wiring – Rear speed

Locate the connector of the rear speed sensor (FIG 5) and use connections **K** and **L** to bridge this junction. In this was the rear speed signal is shared between the TCS module and the dashboard/ECU.



Wiring – Power supply

Locate the lap timer connector, which is located next to the rear speed as seen in FIG-5. This is a 3 way connector of the same style as the speed sensor but is typically unused and blanked off. Plug connector J with the red band into this position to provide an ignition switched power supply to the TCS.

If the lap time is being used you can purchase an addition Y section piece of wiring called ‘N-7005 lap Time patch cable’. This permits both the TCS and a lap timer to be plugged in at the same time.

Wiring – Battery ground

This vital connection **M** must be connected directly to the battery negative connector, not to the engine block or any other ground source.

Route the wiring using the existing battery negative route and secure using cable ties.

Wiring

Connectors **P** and **Q** should be routed from right to left using the middle of the V between the cylinders so that they are visible from the left side of the bike. At this stage it is not necessary to cable tie them in position.
P – Connector for front wiring loom section
Q – Connector for quick shifter. For more information on quick shifter connections please refer to the ‘System manual’

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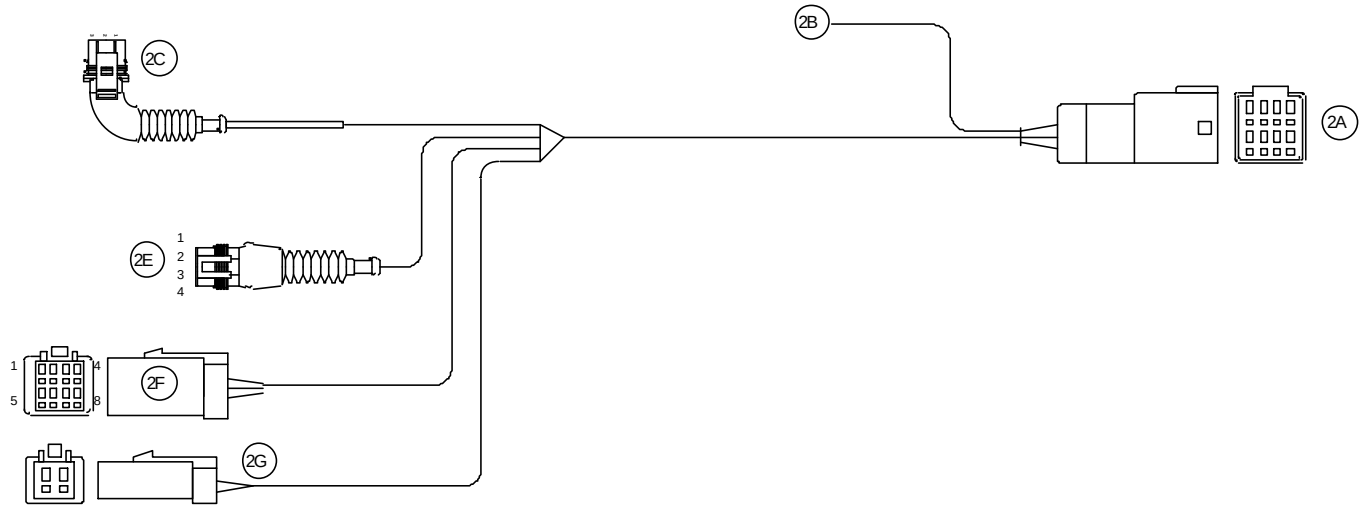
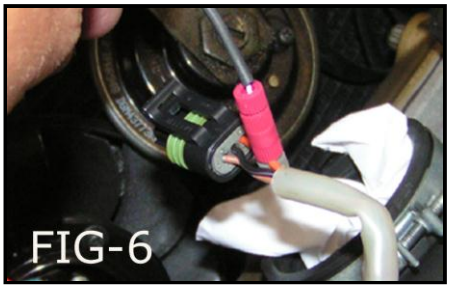
Wiring, Front section 2 - Schematic

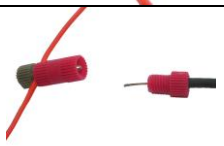
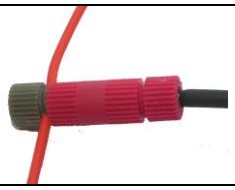


Connect the front section of wiring to the main rear section using the 8 way white connector 2A and route the wiring along the left side of the bike.

Wiring / Front - Throttle

The throttle input is the single wire 2B of this loom . This needs to be attached to the orange signal wire (pin C) of the standard bike throttle position connector using the red quick link provided in the kit, as shown in the steps below and in FIG-6 to the right.



The quick link is made up of three parts as seen here on the right:	
Using the green section with the slot, push it over the orange throttle signal wire of the bike loom until the wire rests at the bottom of the slot:	
The large red centre section must be fitted the correct way around or the link **will not work.** Locate the end with the sharp pointed tip protruding from the end of the outer body and screw this end onto the green section until it rests firmly against the wire. The sharp tip will pierce the outer sleeve but not sever the inner core of the wire:	
Strip back the sleeve of the throttle input wire on the TCS loom CSW1278 so that 8mm of inner metal core is exposed. Push this into the red cap as seen here on the right with inner core showing:	
Screw this cap and wire into the main body ensuring that metal inner core and wire cores are sandwiched and held securely. Shrink sleeving can be put over this quick link if required.	

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Wiring / Front – TC-Pod display
Connect the front wiring loom to the TC-Pod display via the 8 way connector **2F**

Wiring / Front – front wheel speed
Route the front speed wiring **2C** across the front of the bike and following the same route as the brake line to the left calliper, connect it to the front speed sensor. The wiring for sensor must be routed taking all of the following into consideration.

- Movement of forks
- Rotation of the steering
- Positioning of paddock stands

Wiring / Front – PC connector
The 4 way PC connector should remain accessible but securely cable tied to the existing harness.

Wiring / Front – Pit limiter switch
The 2 way pit limiter switch connector can be cable tied out of the way if not needed or plugged into to the dedicated red switch assembly CSP1041 as seen in this image

PC Setup
Your TCS module should be loaded with the following bike :

BIKE - Ducati_DRR.BIKE
TYRE – To suit your installation
CONFIG - TCS_4C_Base_35_02.CONFIG

Status **Position** offset value –
Stronger - **0.21 to 0.32** – Refer to **WinTC View Data**
Normal - **0.32 to 0.37** – Refer to **WinTC View Data**
Weaker - **0.37 to 0.47** – Refer to **WinTC View Data**

Note : The WinTC installation guide can be found in the manual - Win-TC 4C manual_v2.05_a.pdf

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